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## NOTE ON THE SENSORY TRACT OF THE BRAIN.

BY EDWARD C. SPITZKA, M. D., NEW YORK CITY.

It is well known that Meynert<sup>(1)</sup> and those who followed that distinguished anatomist, believed that the tract through which the conscious sensory impressions reach the cortex, extends from the columns of Goll and Burdach, of the cord and lower oblongata, through the so-called superior or sensory decussation, to the anterior pyramids; that thence the tract runs with the anterior pyramids in their outermost third through the pons and pes pedunculi, courses between the thalamus and lenticular nucleus in the posterior third of the internal capsule, and arching back, terminates in the cortex of the occipital lobe. Flechsig showed that what Meynert interpreted as the sensory pyramidal decussation, has no connection with the anterior pyramids, but, on the contrary, enters the lemniscus layer, or interolivary strand, whose relations to the corpora quadrigemina had been explained by Meynert, although he was befogged as to its lower relations, owing to the aforesaid confounding with the anterior pyramids proper.

Now, Flechsig<sup>(2)</sup> distinctly states in his work that the explanation he has been able to furnish of the real nature of the superior decussation, demonstrates the non-existence of a direct tract from that decussation to the cortex.

The true tract has, however, been known to exist, although the relations have not been properly interpreted. The lemniscus layer is not only a detachment from the corpora quadrigemina, but also distinctly incorporates a peculiar bundle, described by Henle as a fasciculus, from the pes to the tegmentum<sup>(3)</sup>. This tract continues, in at least a part of the fibres, from the columns of Goll and Burdach to the pes pedunculi and thence, no doubt, to the cortex of the brain. The circuit for the conscious sensory impressions transmitted by the cord, and proposed by Meynert, therefore becomes re-established, with a modification, namely, that the sensory tract does not run through the pyramids and pons, but immediately above them, and after entering the *pes pedunculi* probably takes the course claimed by Meynert.

That there is a close relation between the pyramidal tracts and the by-track from the superior decussation to the *pes pedunculi*, is proven by an interesting observation which I have been able to make on the elephant's brain. In this animal<sup>(4)</sup> the entire pyramidal tract takes the course of the by-track, that is, there are no vertical fibres in the pons. The crus is continued bodily above the latter (which is composed exclusively of transverse fibres) to take the usual course on the ventral and medial aspect of the olivary nucleus.

This fact strengthens the proposition of Meynert, that there intervenes a third projection series between that of the tegmentum and that of the pes pedunculi, for which he proposes the name of the *stratum intermedium*<sup>(5)</sup>. In man, I believe this stratum intermedium to be the main tract for the conveyance of conscious sensory impressions from the general sensory periphery, while in other animals, at least in the elephant, it is at the same time the voluntary motor tract.

That the sensory fibres occupy the most posterior portion of the internal capsule, while they compose the most dorsal in the pes pedunculi, shows that the fibres of the latter must pursue a spirally twisted course before entering the brain. Such an arrangement seems to be indicated, indeed, in the outer contours of the crus. In an early human embryo, of about the third month, I find a well marked columnar elevation running from the outer part of the crus through the pons, where it touches its fellow of the opposite side, and then passes between the olives<sup>(6)</sup>. This I regard as the embryonically distinct stratum intermedium.

(1). Das Gehirn der Säugethiere, in Stricker's Histology.

(2). Die Leitungsbahnen des Gehirnes und Rückenmarks. 1875.

(3). Lehrbuch der Anatomie des Menschen. 1872.

(4). "Science," February 7, 1881. (5). Archiv fuer Psychiatrie. 1874.

(6). Demonstrated before the N. Y. Neurological Society, March 1, 1881.

## ASTRONOMIAL MEMORANDA.

A small pamphlet, containing notes, corrections, etc., to the "Handbook of Double Stars," has been recently prepared by Messrs. Crossly, Gledhill and Wilson. In the introduction, the editors say: "The corrections have been thrown into two classes: the first contains those which from their importance demand immediate attention in order to save waste of time. These the reader is requested to insert at once. In the second list will be found a large number of corrections which may be entered as the stars are observed or read.

A very copious set of additional notes has also been drawn up, embodying, so far as we know them, the most recent and improved orbits, measures and discoveries.

It seems probable that the asteroid, No. 220, discovered by Palisa on the 23d of March, is identical with No. 139, Juewa. Juewa was discovered by the late Prof. Watson while engaged upon one of the transit of Venus parties in 1874 at Pekin. The asteroid was observed by Rümker at Hamburg, on November 8th of the same year, but since that date it has not been seen.

*Nature* for March 17, contains the following note upon the largest refractor in the world. "A very interesting scientific work, the most important of its kind yet attempted in the kingdom, has just been completed. It is the great refracting telescope, constructed by Mr. Grubb, of Rathmines, Dublin, for the Austro-Hungarian Government, and it is to be placed in the Observatory at Vienna. A commission appointed by the Government to examine the work, transmitted yesterday to the Austro-Hungarian Embassy, in London, a report expressing their full approval of the manner in which the task has been completed. It is a matter of no little pride to Ireland that she has produced the largest refracting as well as the largest reflecting telescope in the world." The object glass of this instrument is 27 inches in diameter or 1 inch larger than that of the Washington Refractor made by Clark.

W. C. W.

WASHINGTON, D. C., April 21, 1881.

## INTRA-MERCURIAL PLANETS.

In "SCIENCE" of February 26, appeared an article on the above subject by "W. C. W.," which I have read with considerable personal interest, wherein we are led to infer, from purely negative testimony alone, that no such objects were seen during the total eclipse of Aug. 29, 1878, either by the late Prof. Watson or myself. Unfortunately, Prof. Watson's tongue and pen are now silent, and no one exists to defend his observations. What he has written on the subject the astronomical world is familiar with. It is about my own I wish to speak, and in defending them against the negative testimony which your correspondent brings, I hope to be able to convince the reader that because the observers whom he cites saw no planets, it is very far from proving their non-existence.

If the reader will refer to the article itself, he will find delineated on a chart the ground swept over by six observers, but he fails to tell us how short a time was devoted to a search west of the sun, and especially in the immediate region of the two objects seen by me, and near which one of Watson's objects was, viz., near  $\theta$  Cancri. As not one in a thousand of your readers will have the privilege of reading the reports of those six observers, just published by the Naval Observatory, and, are therefore incapable of forming a correct conclusion on the subject, I have thought it advisable to quote what they really say, and, to remark, that when negative testimony is arrayed against positive, it is very important that its weight, if it has any, be carefully considered.